

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In the Patent Application of:

Serial No.:	10/714,110
Filed:	November 14, 2003
For:	METHOD OF OPERATING A DISHWASHER WITH A CENTRAL CONTROL UNIT

Group Art Unit:	1746
Examiner:	EL-Arini, Zeinab E.

APPEAL BRIEF

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Commissioner for Patents
P.O. Box 1450
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Sir:

This is an Appeal Brief pursuant to 37 C.F.R. §41.37 in support of Appellants' appeal of the Third Rejection of the Examiner, mailed July 16, 2007, of claims 2, 8-10, and 12-20. Each of the topics required by 37 C.F.R. §41.37 is presented herewith and is labeled appropriately.

I. REAL PARTY IN INTEREST

Whirlpool Corporation, having offices in Benton Harbor, Michigan ("Whirlpool" or "Assignee") is the real party in interest of the present application. An assignment of all rights in the present application to Whirlpool was executed by the inventors and recorded in the U.S. Patent and Trademark Office at Reel 014362, Frame 0695.

II. RELATED APPEALS AND INTERFERENCES

Appellants filed a Notice of Appeal of claims 2, 8-10, and 12-20 on February 23, 2006. The appeal was decided by the Board of Patent Appeals and Interferences (“the Board”) in Appeal No. 2006-3025 on March 29, 2007.

III. STATUS OF CLAIMS

Claims 1-11 were in the Application as filed. Claims 1, 3-7, and 11 were previously cancelled without prejudice, and claims 12-20 were added. Claims 2, 8-10 and 12-20, which are presented in the Appendix, were twice rejected by the Examiner. Appellants appealed the final rejection of claims 2, 8-10 and 12-20. The Board subsequently reversed the rejection of claims 2, 8-10 and 12-20, and remanded the Application to the Examiner. The Examiner again rejected claims 2, 8-10 and 12-20. Accordingly, Appellants hereby appeal the rejection of claims 2, 8-10 and 12-20.

IV. STATUS OF AMENDMENTS

An amendment of claims 12, 15, 17, and 19 was filed subsequent to final rejection and prior to the appeal, and all amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT

MATTER

The invention is a method of cleaning dishes in a dishwasher in accordance with a programmed wash cycle. *Application, ¶0010.* The wash cycle is implemented by a central control unit and comprises a rinse step where a rinse liquid is recirculated in the dishwasher and a cleaning step where a wash liquid is

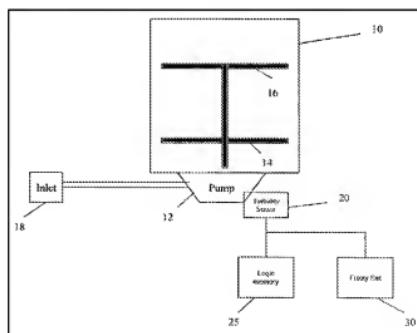


FIGURE 1 OF APPLICATION

recirculated in the dishwasher. *Application, ¶¶0011-0023, 0034-0036.* The method comprises determining a solubility of soil on the dishes to be cleaned, and setting at least one operating parameter of the cleaning step based on the determined solubility. *Application, ¶0035.*

The dishwasher has a tub 10. A circulation pump 12 supplies liquid to a pair of spray arms 14, 16 mounted in the tub 10. A water drain shaft or inlet shaft 18 in the bottom of the tub 10 supplies liquid to the circulation pump 12 which has outputs connected to the spray arms 14, 16. A turbidity sensor 20 is incorporated into the inlet shaft 18 so that the turbidity of the inlet flow into the pump 12 can be measured. The turbidity sensor 20 is operably connected to a central control unit. *Application, ¶0010.*

During a pre-rinse step, input values are transmitted from the dishwasher sensor system, including the turbidity sensor 20, to the central control unit. These include the current temperature of the rinsing liquid, the inlet temperature of fresh water introduced into the dishwasher, the turbidity of the rinsing liquid, the foam load in the rinsing liquid, the increase in the turbidity of the rinsing liquid, and the length of time during the rinsing operation until the increase in the turbidity has achieved the value of zero. *Application, ¶¶0011-0016.* The central control unit uses the input values to derive output values. These include the turbidity of the rinsing liquid, the particle load in the liquid, the solubility of the soil adhering to the dishes, the required wash and rinse liquid temperatures, and the required length of the rinsing operation. *Application, ¶¶0017-0022.* The further course of the wash and rinse operation is established in the central control unit based upon these output values. *Application, ¶0023.*

The solubility of the soil adhering to the dishes is a function of the temperature of the rinsing liquid and the length of time during the rinse operation until the increase in turbidity is zero. *Application, ¶0034.* A relatively low rinse liquid temperature and short rinse time until the change in turbidity is zero will indicate a relatively soluble soil. *Ibid.* Conversely, a relatively high rinse liquid temperature and long rinse time until the change in turbidity is zero will indicate a relatively insoluble soil. *Ibid.*

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

In the Office Action of July 16, 2007, the Examiner rejected claims 2, 8-10, and 12-20, as follows:

- Claims 2, 8-10, and 12-20 under 35 U.S.C. §103(a) as allegedly obvious over U.S. Patent No. 3,888,269 to Bashark (“Bashark”) in view of U.S. Patent No. 5,586,567 to Smith et al. (“Smith”). Appellants disagree with the Examiner’s assertion that the Bashark and Smith references render claims 2, 8-10, and 12-20 obvious to one skilled in the art.
- Claims 2, 8-10, and 12-20 under 35 U.S.C. §103(a) as allegedly obvious over Bashark in view of Smith, and further in view of U.S. Patent No. 3,114,253 to Morey et al. (“Morey”). Appellants disagree with the Examiner’s assertion that the Bashark, Smith, and Morey references render claims 2, 8-10, and 12-20 obvious to one skilled in the art.
- Claims 2, 8-10, and 12-20 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly unpatentable over claims 2, 24-29, 31, 32, 34, 35, and 37-39 of Application No. 10/713,305. Appellants disagree with the Examiner’s assertion that claims 2, 8-10, and 12-20 are unpatentable over claims 2, 24-29, 31, 32, 34, 35, and 37-39 of Application No. 10/713,305.

VII. ARGUMENT

In its decision of March 29, 2007, the Board concluded that the Examiner had not provided sufficient evidence to establish that the step of determining solubility of the soil on dishes is inherent in the applied prior art measurement of turbidity, and reversed the rejection of claims 2, 8-10, and 12-20 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 3,888,269 to Bashark in combination with U.S. Patent No. 5,586,567 to Smith et al.

The Board stated "In our view, Appellants have persuasively argued that one of ordinary skill in the art at the time of the invention would not have viewed the applied prior art as disclosing, either explicitly or inherently, a method in which "solubility of soil on the dishes to be cleaned" is measured. Appellants' arguments, though clearly pointing out the differences between turbidity and solubility, have not been addressed by the Examiner. (See Answer 6). Accordingly, the Examiner's rejection cannot be sustained." *Decision on Appeal*, p. 5. In remanding, the Board instructed that

...the Examiner should: (a) evaluate the propriety of a possible rejection under 35 U.S.C. § 103 in view of Morey et al, US 3,114,253 (see Bashark, col. 1, ll. 54-59) either alone or in combination with the prior art dishwashers or inventive dishwasher controls referred to in Bashark and (b) determine whether an operator manual rinse of dishes (for example, using a water spray from a faucet) prior to selection of a preprogrammed operating cycle is a known prior art dishwashing method involving a determination of the solubility of soil on the dishes to be cleaned and, if so, whether such would form a basis for introducing a rejection of any of the appealed claims. *Decision on Appeal*, p. 6.

The Examiner has done neither. In fact, the Examiner has continued the same rejections that were previously overturned by the Board, with minimal attempt to refine the rejections in any substantive way in response to the Board's decision. Nevertheless, even if the Examiner had followed the Board's instructions, the addition of Morey would not overcome the Examiner's failure to support the rejection since Morey does not disclose determining the solubility of soil on dishes. Furthermore, a manual rinse of dishes does not involve a determination of the solubility of soil on the dishes. Thus, the rejections should again be reversed.

A. Claim Rejections - 35 U.S.C. §103(a)

1. Claims 2, 8-10, and 12-20 are patentable over Bashark in view of Smith.

It is worth noting that the rejection of claims 2, 8-10, and 12-20 over Bashark in view of

Smith in the July 16, 2007, Office action is virtually identical to the rejection of claims 2, 8-10, and 12-20 in the prior Office action dated November 23, 2005, which was reversed by the Board. Therefore, this issue has been resolved in Appellant's favor and these claims are allowable over the cited prior art.

As repeatedly explained by Appellants in the prosecution and appeal, Bashark describes a dishwasher turbidity sensor for sensing the degree of turbidity of dishwashing liquid wherein the output from the turbidity sensor is used to modify a generally standardized cleaning cycle comprising one or more generally standardized rinse cycles. Nothing in Bashark even suggests determining the solubility of soil on dishes to be cleaned as a factor in modifying the cleaning cycle, as called for in independent claim 12, and dependent claims 2, 8-10, and 13-20.

As also repeatedly explained by Appellants during prosecution and appeal, Smith describes a dishwasher turbidity sensor which is installed in a cylindrical housing. The dishwasher is operated to minimize the generation of bubbles in the dishwashing fluid during the turbidity determination. Smith defines turbidity as "a measure of the suspended and/or soluble soils in the fluid that causes light to be scattered or absorbed." *Col. 3, ln. 51-53*. However, Smith does not disclose determining the solubility of soil on dishes, or setting at least one operating parameter of a cleaning step based on the determined solubility as called for in independent claim 12, and dependent claims 2, 8-10, and 13-20.

The combination of Bashark and Smith fails to reach Appellants' invention. As Appellants have thoroughly discussed throughout the prosecution of this case, there is no reference in either Bashark or Smith to determining the solubility of soil on dishes to be cleaned. Bashark simply obtains turbidity readings from a turbidity sensor and utilizes an inferred level of turbidity to determine how the cleaning cycle should progress. Smith simply obtains turbidity measurements at the end of selected operating cycles in order to eliminate the bubble generation typically experienced during turbidity measurements taken during the operating cycles. There is nothing in either Bashark or Smith to even suggest the process described by Appellants in the claims at issue. The combination of Bashark and Smith simply describes a turbidity sensor

mounted in a housing wherein turbidity measurements are obtained at the end of selected operating cycles in order to eliminate the generation of bubbles in the dishwashing liquid in order to modify a generally standardized cleaning cycle comprising one or more generally standardized rinse cycles. This is not the invention described in claims 2, 8-10, and 12-20.

The Examiner's asserted rationale supporting the rejection in the present Office action is identical to the rationale asserted in the November 23, 2005, final Office action which gave rise to the first Appeal in this case, except that the Examiner has now added the following statement:

It would have been obvious for one skilled in the art to use the process taught by Bashark to obtain the claimed process, because the steps of measuring the turbidity as taught by Bashark will include determining the solubility of the soil as claimed. The steps as claimed are inherent in the Bashark process. This is also because the degree of turbidity depends on the amount of soil been found on the dishes. See Bashark, col. 1, lines 54-59, and col. 3, lines 3-20. The turbidity which is a measure of the soluble soil in the liquid depend on the temperature, the time or the duration of the cleaning step, the volume of water, and the quantity of cleaning agent as claimed. This is also because an operator manual rinse of dishes (for example, using a water spray from a faucet) prior to selection of a preprogrammed operating cycle is a known prior art dishwashing method involving a determination of the solubility of soil on the dishes to be cleaned.

Office action, pp. 3-4.

Notwithstanding the Board's clear admonition, the Examiner persists in arguing, without any supporting evidence, that the step of determining solubility of the soil on dishes is inherent in the applied prior art measurement of turbidity. The Board concluded that Appellants have "persuasively argued" that the prior art does not disclose, either explicitly or inherently, a method in which the solubility of soil on dishes is measured. In effect, the Board concurs in Appellants' showing that solubility does not equate to turbidity, and that the magnitude of turbidity alone does not determine solubility. Yet the Examiner offers nothing in support of the rejection in the

July 16, 2007, Office action that was not offered in earlier Office actions. The Board concluded that the failure of support for the Examiner's position required reversal of the rejection. This failure has not been resolved.

It is evident that the Examiner's rejection is arbitrary and capricious, and not in accordance with law. First, the Examiner's rationale is conflicting. The Examiner concedes that "Bashark does not teach the steps and determining the solubility of the soil on the dishes as claimed." *Office action*, p. 3. The Examiner then contradicts this statement by asserting that "the steps of measuring the turbidity as taught by Bashark will include determining the solubility of the soil as claimed." *Ibid.* This indicates clearly that the Examiner is simply crafting conclusory statements in an attempt to support an unsupportable position. There is no factual support for the rejection.

Moreover, the Examiner cites passages in Bashark (i.e. col. 1, ln. 54-59, and col. 3, ln. 3-20) ostensibly to bolster the assertion that the prior art discloses determining the solubility of soil on dishes, even though the passages in no way support the assertion. Column 1, lines 54-59, of Bashark simply cites U.S. Patent No. 3,114,253 to Morey et al. as disclosing a control for measuring the turbidity of a wash liquid. Column 3, lines 3-20, of Bashark describes the process of sensing the turbidity of a wash liquid and controlling the operation of the dishwasher in response to the turbidity. Neither of these passages even remotely addresses the solubility of soils on dishes or the determination of solubility.

The Examiner utterly fails to engage in the analysis required by law, and as mandated by the Board in its Decision, to support a rejection under 35 U.S.C. §103(a). The Examiner simply asserts that "the steps of measuring the turbidity as taught by Bashark will include determining the solubility of the soil as claimed." The Examiner offers no evidence in support of this assertion, which is nothing more than the unsubstantiated conclusion that the Examiner has repeatedly proffered, and has been rejected by the Board. The Board concluded that the Examiner had failed to overcome Appellants' showing that determining turbidity is not equivalent to determining solubility. The Examiner's groundless assertion is wholly inadequate

to overcome Appellants' showing.

Furthermore, the Examiner's assertion that "The steps as claimed are inherent in the Bashark process. This is also because the degree of turbidity depends on the amount of soil been [sic] found on the dishes" is nothing more than the unsubstantiated arguments that the Examiner has already asserted, and have been rejected. The only support offered by the Examiner for these conclusory statements are the two passages in Bashark discussed above, which do not support the Examiner's position. Moreover, while the degree of turbidity may depend on the quantity of soil on the dishes, it does not follow that the degree of turbidity provides a determination of the solubility of the soil on the dishes. In their Appeal Brief, Appellants provided evidence to show that turbidity is not equivalent to solubility, that turbidity is a characteristic of a liquid containing a suspended material, and that solubility is a characteristic of the solid material itself. The Board's reversal manifests the persuasiveness of this evidence.

Finally, the Examiner relies on assertions that are irrelevant. The Examiner asserts that "The turbidity which is a measure of the soluble soil in the liquid depend on the temperature, the time or the duration of the cleaning step, the volume of water, and the quantity of cleaning agent as claimed. This is also because an operator manual rinse of dishes (for example, using a water spray from a faucet) prior to selection of a preprogrammed operating cycle is a known prior art dishwashing method involving a determination of the solubility of soil on the dishes to be cleaned." This does not support the Examiner's position, or overcome Appellants' evidence.

The first sentence is addressed to turbidity, not solubility. It in no way relates to the determination of the solubility of soil on dishes. It does not explain how the solubility of soil on dishes can be determined. It simply asserts that turbidity is a function of temperature, the time or duration of the cleaning step, the volume of water, and the quantity of cleaning agent. It is irrelevant to the issue of whether Bashark and Smith disclose a method in which the solubility of soil on dishes to be cleaned is measured.

The second sentence appears to have been appended to the Office action as an afterthought, motivated no doubt by the Board's suggestion that the Examiner should on remand

evaluate "whether an operator manual rinse of dishes (for example, using a water spray from a faucet) prior to selection of a pre-programmed operating cycle is a known prior art dishwashing method involving a determination of the solubility of soil on the dishes to be cleaned and, if so, whether such would form a basis for introducing a rejection of any of the appealed claims."

Decision on Appeal, p. 6. The Examiner has simply parroted the Board's language without even a hint of the evaluation required by the Board. The Board's statement instructs the Examiner to determine whether an operator manual rinse of dishes involves a determination of the solubility of soil on the dishes to be cleaned. The Examiner has not engaged in this determination.

Nevertheless, manually rinsing soiled dishes would not constitute a determination of the solubility of the soil on the dishes. The removal of the soil could be related to solubility, or it could be related to the force of the water directed against the soiled areas of the dishes. It could be related to the temperature of the water, the duration of the rinsing, or whether the water is hard or soft. The limitation calling for a determination of the solubility of the soil on the dishes means more than simply observing the removal of soil from the dishes. The mere act of rinsing dishes discloses nothing substantively about the solubility of the soil on the dishes.

Moreover, the claims call for "setting at least one operating parameter of the cleaning step based on the determined solubility." Thus, in order for the control method of Appellants' invention to function properly, the determination of solubility must be accurate, consistent, and reproducible over hundreds of wash cycles. An uncontrolled manual rinse, where the removal of soil may be due to the force of the water against the soil, the temperature of the water, the duration of the rinse, and other factors bearing on the effectiveness of the rinse, each of which can change dramatically from rinse to rinse, would be completely ineffective for establishing any meaningful solubility parameter, and could never be used in Appellants' claimed invention. A manual rinse in combination with Bashark and Smith cannot reach the claimed invention.

The Examiner's rejection under appeal does nothing more than repeat the Examiner's basic argument concerning an asserted equivalence between turbidity and solubility, which the Board has unequivocally rejected. The Examiner has offered nothing new to counter Appellants'

evidence that Bashark and Smith do not disclose, either explicitly or inherently, a method in which "solubility of soil on the dishes to be cleaned" is measured, that determining turbidity is not equivalent to determining solubility, and that determining solubility is not inherent in determining turbidity.

Claims 2, 8-10, and 12-20 are not obvious in view of the combination because the combination does not disclose any way determining solubility as required by the claims. As such, the combination is missing an entire element of the claims, rendering the claims patentable over the combination.

For these reasons, claims 2, 8-10, and 12-20 are patentable over Bashark in combination with Smith, and also in combination with a manual rinse. Appellants request reversal of the rejection of claims 2, 8-10, and 12-20.

2. Claims 2, 8-10, and 12-20 are patentable over Bashark in view of Smith and further in view of Morey.

Morey discloses a clothes washing machine having a turbidity sensor, and a process for controlling the washing cycle utilizing the rate of change in turbidity of the wash liquid as determined by the sensor. Nowhere in Morey is there any mention of solubility, let alone determining the solubility of soil on the articles to be washed. Indeed, Morey differs little from Bashark in that both Bashark and Morey control a washing operation based upon the sensed turbidity of a wash liquid, except that Bashark is addressed to a dishwasher and Morey is addressed to a clothes washer.

As discussed above, neither Bashark nor Smith discloses determining the solubility of soil on dishes to be cleaned. Thus, the combination of Bashark and Smith fails to disclose determining the solubility of soil on dishes to be cleaned. Morey likewise does not disclose determining the solubility of soil on articles to be cleaned, and thus adds nothing to the combination of Bashark and Smith relating to a determination of the solubility of soil on dishes. The combination of Bashark, Smith, and Morey does not and cannot reach Appellants' claimed

invention.

The Examiner asserts:

It would have been obvious for one skilled in the art to use the process taught by Bashark to obtain the claimed process, because the steps of measuring the turbidity as taught by Bashark will include determining the solubility of the soil as claimed, see Bashark, col. 1, lines 54-59, or Morey et al. (See col. 11, lines 15-21, lines 30-50, and col. 9, line 64-col. 10, line 10). This is also because the degree of turbidity depends on the amount of soil been found on the dishes. See Bashark, col. 3, lines 3-20. The turbidity which is a measure of the soluble soil in the liquid depend on the temperature, the time or the duration of the cleaning step, the volume of water, and the quantity of cleaning agent as claimed. *Office action, p. 5.*

As discussed above, the cited passages in Bashark do not support the Examiner's position. The cited passages in Morey also do not support the Examiner's position. The passage at column 11, lines 15-21, of Morey provides that the rate of removal of soil from fabrics in a washing machine has a direct relationship to the rate of change of turbidity of the washing solution. This information is utilized to terminate the washing operation when the rate of change of turbidity approaches zero. The passage at column 11, lines 30-50, provides that the washing of other articles besides clothing may be controlled by the rate of change of turbidity of the washing solution, and that the rate of change of turbidity can be utilized in other ways. For example, the turbidity can be utilized to control the dispensing of detergent into the wash liquid. Finally, the passage at column 9, line 64, through column 10, line 10, discusses an exemplary curve showing the time rate of change of turbidity, the rate of change eventually approaching a value of zero. None of these passages refers in any way to determining the solubility of soil on an article to be cleaned, the equivalence of turbidity to solubility, or that a determination of turbidity inherently involves a determination of solubility. The passages offer no support for the Examiner's position.

Again, the Examiner utterly fails to engage in the analysis required by law, and as mandated by the Board in its Decision, to support a rejection under 35 U.S.C. §103(a). The Examiner offers no evidence in support of the assertions, which are nothing more than the unsubstantiated conclusions that the Examiner has repeatedly proffered, and have been rejected by the Board. The Board concluded that the Examiner had failed to overcome Appellants' showing that determining turbidity is not equivalent to determining solubility. The Examiner's proffered rationale in the Office action is nothing more than the same statements offered in support of the rejection based on the combination of Bashark and Smith alone. The Examiner simply adds passages from Morey, which, as discussed above, do not support the Examiner's position. Thus, the Examiner's rationale is inadequate to support the rejection.

For the above reasons, claims 2, 8-10, and 12-20 are patentable over Bashark in view of and Morey. Appellants request reversal of the rejection of claims 2, 8-10, and 12-20.

B. Claim Rejections-Obviousness-Type Double Patenting

Claims 2, 8-10, and 12-20 stand provisionally rejected as unpatentable over claims 2, 24-29, 31, 32, 34, 35, and 37-39 of Application Serial No. 10/713,305. This rejection is traversed.

Claim 24 of the '305 application and claim 12 of the current application are the only independent claims in the respective applications. As of August 7, 2007, claim 24 of the '305 application calls for

A method of cleaning dishes in a dishwasher in accordance with a programmed wash cycle implemented by a central control unit and comprising a rinse step and a cleaning step where a rinsing liquid is recirculated in the dishwasher, the dishwasher comprising an upper spraying apparatus defining an upper spray plane and a lower spraying apparatus defining a lower spray plane, the method comprising:

determining turbidity values corresponding to the recirculation of the rinsing liquid in the lower spray plane and the upper spray plane, respectively, the lower

and upper spray planes alternately recirculating the rinsing liquid and the determined turbidity values being associated with the respective spray plane in operation;

determining a degree of soiling by determining a difference value corresponding to the difference between the turbidity values of the upper and lower spray planes; and

setting at least one operating parameter of at least one of the rinse step and the cleaning step based on the determined degree of soiling.

Claim 12 of the current application calls for

A method of cleaning dishes in a dishwasher in accordance with a programmed wash cycle implemented by a central control unit and comprising a rinse step where a rinse liquid is recirculated in the dishwasher and a cleaning step where a wash liquid is recirculated in the dishwasher, the method comprising:

determining a solubility of soil on the dishes to be cleaned; and

setting at least one operating parameter of the cleaning step based on the determined solubility.

Initially, the Examiner has failed to satisfy the requirements for sustaining an obviousness-type double patenting rejection. As stated in Section 804(II) of the MPEP:

A double patenting rejection of the obviousness-type is "analogous to [a failure to meet] the nonobviousness requirement of 35 U.S.C. 103" except that the patent principally underlying the double patenting rejection is not considered prior art. *In re Braithwaite*, 379 F.2d 594, 154 USPQ 29 (CCPA 1967). Therefore, any analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. 103 obviousness determination. *In re Braat*, 937 F.2d 589, 19 USPQ2d 1289 (Fed. Cir. 1991); *In re Longi*, 759 F.2d 887, 225

USPQ 645 (Fed. Cir. 1985).

Since the analysis employed in an obviousness-type double patenting determination parallels the guidelines for a 35 U.S.C. 103(a) rejection, the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are employed when making an obvious-type double patenting analysis. These factual inquiries are summarized as follows:

- (A) Determine the scope and content of a patent claim relative to a claim in the application at issue;
- (B) Determine the differences between the scope and content of the patent claim as determined in (A) and the claim in the application at issue;
- (C) Determine the level of ordinary skill in the pertinent art; and
- (D) Evaluate any objective indicia of nonobviousness.

The conclusion of obviousness-type double patenting is made in light of these factual determinations.

Any obviousness-type double patenting rejection should make clear:

- (A) The differences between the inventions defined by the conflicting claims – a claim in the patent compared to a claim in the application; and
- (B) The reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim at issue would have been an obvious variation of the invention defined in a claim in the patent.

The Examiner has failed to engage in the analysis required by *Graham, supra*, and has failed to identify the differences between the inventions defined by the conflicting claims, or the reasons why a person of ordinary skill in the art would conclude that the invention of claim 12

would have been an obvious variation of the invention defined in claim 24 of the '305 application. Thus, the rejection is improper and should be withdrawn.

Even if the rejection were proper, claims 2, 8-10, and 12-20 do not raise any double-patenting issues with the claims of Application Serial No. 10/713,305. According to the Office action, the basis for the double-patenting rejection is that the conflicting claims, while not identical, are not patentably distinct from each other because "the process as claimed in both applications is functionally equivalent." *Office action, p. 2.*

Claim 24 of the '305 application calls for measuring the turbidity of a rinse liquid during which upper and lower spray planes are operated in an alternating manner, determining a degree of soiling by determining a difference value corresponding to the difference between the turbidity values of the upper and lower spray planes, and setting at least one operating parameter of at least one of a rinse step and a cleaning step based on the determined degree of soiling. Thus, claim 24 describes a method in which rinse liquid is circulated alternately through upper and lower spray planes, the difference in turbidity values for the upper and lower spray planes is determined, a degree of soiling is determined from the difference in the turbidity values, and at least one operating parameter of at least one of a rinse step and a cleaning step is set based on the determined degree of soiling. The degree of soiling, i.e. the quantity of soil, is determined, not the solubility of the soil.

Claim 12 of the current application calls for determining the solubility of soil on dishes and setting at least one operating parameter of a cleaning step based on the determined solubility. Thus, claim 12 describes a method with less specificity than the method of claim 24. Furthermore, claims 24 and 12 claim fundamentally different elements. That is, claim 24 of the '305 application is directed to measuring the turbidity of a rinse liquid and determining a degree of soiling therefrom. In contrast, claim 12 of the current application calls for determining the solubility of soil. The solubility of soil and the quantity of soil are two very distinct characteristics. It appears that the Examiner is equating solubility with quantity, which Appellants submit is fundamentally wrong. Therefore, the processes of claims 24 and 12 are not

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functionally equivalent, and the process in claim 12 is not unpatentable over the process in claim 24 for obviousness.

For these reasons, claims 2, 8-10, and 12-20 are not unpatentable for obviousness-type double patenting. Appellants request the reversal of the rejection of claims 2, 8-10, and 12-20.

CONCLUSION

In view of the foregoing, it is submitted that the continuing rejection of claims 2, 8-10, and 12-20 is improper and should not be sustained. Therefore, a reversal of the rejection of claims 2, 8-10, and 12-20 is respectfully requested.

Respectfully submitted,

CLEMENS JUNG ET AL.

Dated: December 7, 2007

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VIII. CLAIMS APPENDIX

1. Cancelled.
2. The method according to claim 13, wherein the pre-rinse step comprises one of heating or not heating the rinse liquid.
- 3-7. Cancelled
8. The method according to claim 15, wherein the duration of the cleaning step and the water temperature of the cleaning step are continuously controlled between a minimum value and a maximum value as a function of the turbidity of the rinse liquid and the determined solubility.
9. The method according to claim 13, wherein a fuzzy set is used in the central control unit for determining the solubility.
10. The method according to claim 9, wherein fuzzy rules are programmed in a programmable memory of the central control unit in order to adapt the fuzzy set to changes in the rinse step.
11. Cancelled
12. A method of cleaning dishes in a dishwasher in accordance with a programmed wash cycle implemented by a central control unit and comprising a rinse step where a rinse liquid is recirculated in the dishwasher and a cleaning step where a wash liquid is recirculated in the dishwasher, the method comprising:
 - determining a solubility of soil on the dishes to be cleaned; and
 - setting at least one operating parameter of the cleaning step based on the determined

solubility.

13. The method according to claim 12, wherein the determination of solubility occurs during a pre-rinse step.

14. The method according to claim 13, wherein the pre-rinse step comprises a portion of the rinse step.

15. The method according to claim 12, wherein the setting of the at least one operation parameter comprises setting at least one of a duration of the cleaning step, a water temperature of the cleaning step, a volume of water during the cleaning step, and a quantity of cleaning agent.

16. The method according to claim 12, wherein determining the solubility of the soil on the dishes comprises determining at least one of a temperature of the rinse liquid and a turbidity characteristic of the rinse liquid.

17. The method according to claim 16, wherein the determining of the turbidity characteristic of the rinse liquid comprises determining a length of time required for the turbidity to stop increasing during the rinse step.

18. The method according to claim 17, wherein determining the length of time for the turbidity to stop increasing comprises obtaining at least one measurement from a turbidity sensor.

19. The method according to claim 18, wherein determining the length of time for the turbidity to stop increasing comprises determining a difference in turbidity measurements associated with a selective operation of an upper spray device and a lower spray device.

20. The method according to claim 19, wherein the selective operation of the upper spray

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device and the lower spray device comprises alternately operating the upper spray device and the lower spray device.

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IX. EVIDENCE APPENDIX

No evidence has been entered by the Examiner or Appellants into the record.

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X. RELATED PROCEEDINGS APPENDIX

There being no decision rendered by a court or the Board in any related proceeding, none is listed here.